

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problems Mailbox.**

REMARKS

This response is being presented in response to the Examiner's action of November 22, 2002. The Examiner has indicated that claims 1-28 have been rejected. In light of the following detailed arguments, it is respectfully submitted that the claims fully distinguish over the applied prior art.

The Examiner continues to reject claims 1-21 under 35 USC §103 as being unpatentable over McCurdy (U.S. Patent No. 5,780,149) in view of Terneu et al. The Examiner stated that McCurdy teaches a coated glass article comprising a 3 mm thick substrate with first and second coatings, one of which coatings is an antimony doped tin oxide coating, wherein the glass article exhibits a selectivity of 10 or greater. The Examiner acknowledges that McCurdy is silent as to the second coating being fluorine doped tin oxide deposited on and adhering to the coating of antimony doped tin oxide. The Examiner attests that the Terneu reference disclosed that the inclusion of a fluorine doped tin oxide layer on an antimony doped layer provided a low solar factor and emissivity. The Examiner therefore asserts that it would have been obvious to one skilled in the art to replace the second layer with a fluorine doped tin oxide layer.

Claims 22-25 also continue to be rejected over the combination of McCurdy and Terneu. The Examiner indicated that McCurdy shows an insulating glass stack with an insulating unit comprising first and second glass substrates, a multi-layer coating stack with at least first and second coatings, one of which is a coating of antimony-doped tin oxide, wherein the glass article exhibits a selectivity of 10 or greater. The Examiner further avers that the McCurdy reference teaches that the thickness of the first and second layers is dependent upon the desired solar

performance of the stack. The Examiner states that Terneu discovered that the inclusion of a fluorine doped tin oxide layer on an antimony doped tin oxide layer provided a low solar factor and emissivity. The Examiner thus concluded that one of ordinary skill in the art would replace the second layer of McCurdy with the fluorine doped layer of Terneu, in order to obtain lower solar factors and emissivities.

The Examiner additionally continues to reject claims 26-28 under 35 USC §103 as being unpatentable over McCurdy in view of Terneu. The Examiner avers that McCurdy teaches a coated glass article comprising the substrate with a 3mm thickness and at least first and second coatings one of which contains antimony doped tin oxide, wherein the glass article exhibits a selectivity of ten or greater. McCurdy teaches that the thickness of the first and second layers is dependent upon the desired solar performance of the stack. The Examiner acknowledges that McCurdy is silent as to the second coating being fluorine doped tin oxide. The Examiner thus concludes that it would have been obvious to one skilled in the art to modify the glass article of McCurdy with the teachings of Terneu, to provide thicknesses within the claimed ranges to affect the solar performance.

Before discussing the prior art in detail, applicants again wish to discuss the present invention as defined in the independent claims. Independent claim 1 defines a coated glass article comprising a glass substrate, a coating of antimony doped tin oxide depositing on and adhering to said glass substrate. An additional coating of fluorine doped tin oxide is deposited on and adheres to the first coating. The thicknesses of the coatings are selected to provide a selectivity of thirteen or more.

Independent claim 22 defines an insulating glass unit. The insulating glass unit comprises first and second glass substrates with a multilayer coating stack deposited on the second glass substrate. A first coating of antimony doped tin oxide is deposited on the surface with a second coating of fluorine doped tin oxide deposited on and adhering to the first coating. The second glass substrate exhibits a difference between visible light transmittance and total solar energy transmittance of thirteen or more.

Independent claim 26 also describes a coated glass article comprising a substrate, a coating of antimony doped tin oxide, and a coating of fluorine doped tin oxide deposited on and adhering to the coating of antimony doped tin oxide.

In the Examiner's response to the preceding request for reconsideration, the Examiner indicated that the arguments in the response of September 3, 2002 were unpersuasive. The Examiner indicated on page 7 of the Office Action that she did not agree with applicants' arguments regarding the purpose of McCurdy, and the essential feature of McCurdy regarding the combination of coatings used in McCurdy. The Examiner noted that McCurdy teaches the same glass thickness, selectivity, and difference in illuminant C as claimed in instant claim 1. The Examiner further stated that the purpose of the prior art is immaterial, especially where the same teachings are provided.

As stated before, the McCurdy reference discloses a glass article having a solar control coating for architectural windows. The article includes a glass substrate and an iridescence suppressing interlayer deposited on and adhering to the surface of the glass substrate. The article further comprises first and second transparent coatings deposited on the iridescence suppressing

interlayer. Applicants again note that the invention *requires* that the first and second transparent coatings are chosen such that the difference in the refractive indices of the coatings in the near infrared region are greater than the difference of the refractive indices of the coatings in the visible region. (See, for example, column 3, lines 9-18 and column 5, lines 18-34.) The selection results in an architectural glazing which rejects solar energy in the near infrared region while permitting the transmittance of a high degree of visible light. Applicants continue to assert that the selection of the coatings based on these criteria is essential to the stated purpose of the McCurdy reference.

The Examiner has stated in the action that the McCurdy reference is silent as to the second coating being fluorine doped tin oxide deposited on and adhering to the coating of antimony doped tin oxide, and has thus applied the Temeu reference to supply this teaching. Since the McCurdy reference does not teach this coating, it is respectfully submitted that the disclosure of McCurdy *is not* identical to the teaching of the present invention, as is asserted by the Examiner in the present Office Action..

Further, applicants again assert that the McCurdy reference requires an undoped metal oxide layer, followed by a doped metal oxide layer, and finally another undoped metal oxide layer. The coated glass articles of McCurdy transmit a high degree of visible light, while reflecting a large degree of infrared radiation (column 3, lines 28-31.) McCurdy goes on to state:

The present invention utilizes at least a first transparent coating and a second transparent coating that have a difference in refractive indices in the near infrared region greater than a difference in refractive indices in the visible light region. The difference in refractive indices in the near infrared region provides an interface that serves to reflect near infrared radiation. The similar refractive

indices in the visible region permits the transmittance of a high degree of visible light. The attenuation of near infrared energy results in a coated article having a reduced solar energy transmittance.

As indicated in the response to the previous Office Action, the refractive indices of $\text{SnO}_2\text{:F}$ and $\text{SnO}_2\text{:Sb}$ are very similar in both the visible and in the near infrared regions. Therefore, the inclusion, in the McCurdy reference, of a fluorine doped tin oxide layer adjacent to the antimony doped tin oxide layer would not be obvious to one skilled in the art. In fact, as stated previously, the inclusion of such a layer would render the McCurdy reference inoperable for its intended purpose, that is to allow the transmission of visible light, while reducing the transmission of near infrared radiation.

The Examiner indicates that the purpose of a prior art reference is immaterial, but this is not the position taken by the Court of Appeals for the Federal Circuit. In *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984), the CAFC reasoned that the prior art reference taught away from the board's proposed modification. The court held that *if* the prior art reference were modified as proposed (turned upside down) that "it would be rendered inoperable for its intended purpose." (221 USPQ 1125, 1127.) Thus, where a modification to a reference renders the reference unsuitable for its intended purpose, the CAFC has indicated that such purpose is significant, and that the proposed modification is improper.

It is respectfully submitted that the teaching of *In re Gordon* is directly applicable to the present application. Adding the fluorine doped tin oxide layer of Terneu to the invention of McCurdy would render McCurdy inoperative for its stated purpose, which is to maximize the

transmission of visible light while blocking near infrared radiation by utilizing a pair of coatings that have similar refractive indices in the visible range and differing refractive indices in the near infrared region. Thus, one skilled in the art would have no motivation to combine the references, and would, in fact, have disincentive to do so.

On page 8 of the outstanding Office Action, the Examiner indicates that the effects of the refractive indices of coatings of McCurdy is not germane to patentability, and has stated that "the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability *when the differences would have otherwise have been obvious.*" (*Ex parte Obiaya*, emphasis added.) As discussed above, applicants respectfully assert that the combination of McCurdy and Terneu would *not have been obvious* to one skilled in the art, as the purpose of the McCurdy reference would have been destroyed by the combination with Terneu, in light of the teachings of *Gordon*. Thus, because of the nature of the coatings applied to McCurdy, and the properties desired by the application of these coatings, it is submitted that the coating materials in McCurdy is very germane to the McCurdy reference, and the combination of a fluorine doped tin oxide layer on an antimony doped tin oxide layer is not obvious, and is in fact taught away from by the teachings of McCurdy. As the teachings are not obvious, it is respectfully submitted that the *Obiaya* holding is not applicable to the present invention.

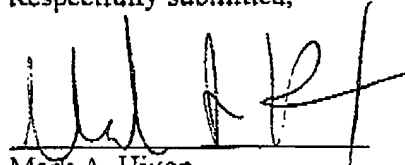
Based upon the above, it is submitted that the combination of McCurdy and Terneu is improper and should be withdrawn.

Independent claims 22 and 26 provide a similar analysis to that of claim 1. Each of these claims define a coating stack similar to that of claim one, and have the same art applied against them as was applied against claim one. For the reasons stated above, is respectfully submitted that the combination of these references is improper and thus that claims 22 and 26 are also allowable over the applied prior art.

The dependent claims 2-21, 23-25, and 27-28, are believed to be allowable based, at least, upon their dependence on allowable base claims as discussed above.

In view of the above remarks, a favorable reconsideration of the present application and the passing of this application to issue with all claims allowed are courteously solicited. If the Examiner wishes to modify any of the language of the claims in an effort to move the application towards allowance, a telephone call to the undersigned would be greatly appreciated.

Respectfully submitted,



Mark A. Hixon
Registration No. 44,766

ATTORNEYS
Marshall & Melhorn, LLC
Four SeaGate - 8th Floor
Toledo, Ohio 43604
(419) 249-7114